

STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS

200 East Race St Knoxville, TN 37763 Lab ID: N00003966 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

Project Name:

N00003966001

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 09:40

Sampler's Name:

BRANDY LONG

County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Received By:

Date/Time Received:

01/08/2009

12:45

P Singh

Field Determinations

Chlorine, residual: Conductivity:

Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Total Alkalinity	46	mg/L	3.8	10	M Chen	1/9/2009		

TEST: Hardness, Calcium	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	34	mg/L	0.7	1	M Chen	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

Project Name:

N00003966002

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 09:45

Sampler's Name:

BRANDY LONG

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville TDEC-DWS

Send Report To:

327.39-12 TDEC-DWS TDEC-DWS

Agency Invoiced: **Priority Date:**

Date/Time Received:

01/08/2009

12:45

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	ME	THOD: EPA 31	0.2			· · · · · · · · · · · · · · · · · · ·	
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Total Alkalinity	50	mg/L	3.8	10	M Chen	1/9/2009	

TEST: Hardness, Calcium	ME:					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	40	mg/L	0.7	1	M Chen	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00003966003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 11:00

Sampler's Name:

BRANDY LONG

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12

Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

01/08/2009

12:45

Received By:

P Singh

Field Determinations pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Alkalinity, Total		ME	THOD: EPA 3	10.2			
ANALYTE	RES	JLT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	68	3	mg/L	3.8	. 10	M Chen	1/9/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	50	mg/L	0.7	1	M Chen	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00003966004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 11:05

Sampler's Name:

BRANDY LONG

County:

ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS

Send Report To:

327.39-12

Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

01/08/2009

12:45

Received By:

P Singh

pH: Chlorine, residual:

Field Determinations

Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	58	mg/L	3.8	10	M Chen	1/9/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	51	mg/L	0.7	1	M Chen	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

Project Name:

N00003966001

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 09:40

Sampler's Name: County:

BRANDY LONG ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: **Agency Invoiced:**

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

01/08/2009 12:45

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	01/09/2009				M Pattanayek	1/9/2009

TEST: ICP-MS	ME ⁻	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/9/2009
Barium	21	μg/L	2.5	5	M Pattanayek	1/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/9/2009
Cobalt	0.28J	μg/L	0.04	1	M Pattanayek	1/9/2009
Lead	0.58J	μg/L	0.10	1	M Pattanayek	1/9/2009
Manganese	48	μg/L	0.42	1	M Pattanayek	1/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/9/2009
Thallium	0.28J	μg/L.	0.03	1	M Pattanayek	1/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/9/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	1/9/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00003966002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 09:45

Sampler's Name: County:

BRANDY LONG

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS TDEC-DWS

Agency Invoiced: **Priority Date:**

Date/Time Received:

01/08/2009 12:45

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Digestion Metals	MET	METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	01/09/2009				M Pattanayek	1/9/2009

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/9/2009
Barium	17	μg/L	2.5	5	M Pattanayek	1/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/9/2009
Cobalt	0.06J	μg/L	0.04	1	M Pattanayek	1/9/2009
Lead	0.13J	μg/L	0.10	1	M Pattanayek	1/9/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	1/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/9/2009
Thallium	0.12J	μg/L	0.03	1	M Pattanayek	1/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/9/2009

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00003966003

Project Name:

Sample Description: R

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 11:00

Sampler's Name:

BRANDY LONG

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency: Billing Code:

Knoxville TDEC-DWS 327.39-12

Send Report To:
Agency Invoiced:

Date/Time Received:

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TDEC-DWS

Priority Date:

01/08/2009

12:45

01/09/2009

Received By:

Digestion Metals

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

1/9/2009

M Pattanayek

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY: I						

TEST: ICP-MS	MET	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/9/2009
Barium	26	μg/L	2.5	5	M Pattanayek	1/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/9/2009
Cobalt	0.10J	μg/L	0.04	1	M Pattanayek	1/9/2009
Lead	0.19J	μg/L	0.10	1	M Pattanayek	1/9/2009
Manganese	6.3	μg/L	0.42	1	M Pattanayek	1/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/9/2009
Thallium	0.07J	μg/L	0.03	1	M Pattanayek	1/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/9/2009

TEST: Mercury	WE	THOD: EPA 24	5.1			****
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit

Project Name:

N00003966004

Sample Description: **ROCKWOOD WTP**

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

01/08/2009 11:05 **BRANDY LONG**

Sampler's Name: County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS 327.39-12

Billing Code: Send Report To: Agency Invoiced:

TDEC-DWS **TDEC-DWS**

Priority Date:

Date/Time Received:

01/08/2009

12:45

Received By:

P Singh

Field Determinations

:Hq

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	01/09/2009				M Pattanayek	1/9/2009

TEST: ICP-MS	ME.	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/9/2009
Barium	26	μg/L	2.5	5	M Pattanayek	1/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/9/2009
Cobalt	0.07J	μg/L	0.04	1	M Pattanayek	1/9/2009
Lead	U	μg/L	0.10	1	M Pattanayek	1/9/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	1/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/9/2009
Thallium	0.19J	μg/L	0.03	1	M Pattanayek	1/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/9/2009

TEST: Mercury	ME	THOD: EPA 24	5.1	7.14		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.13	0.2	A Wilson	1/9/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit